

## **WHAT IS CLAIMED IS:**

1. A method for controlling regeneration in a particulate filter coupled to an internal combustion engine, comprising:
  - controlling hydrocarbon injection into engine exhaust upstream of an oxidation catalyst disposed upstream of the particulate filter in accordance with a difference between the engine exhaust temperature upstream of the catalyst and a desired particulate filter regeneration temperature.
2. The method recited in claim 1 wherein the predetermined desired particulate filter temperature is a temperature for regeneration within the filter.
3. The method recited in claim 1 wherein the hydrocarbon injection control is a function of at least an engine operating condition and ambient conditions.
4. The method recited in claim 1 wherein the hydrocarbon injection control is a function of a difference between a temperature of the engine exhaust in a region between the catalyst and an entrance to the filter and a temperature of the engine exhaust downstream of the filter.
5. The method recited in claim 1 wherein the hydrocarbon injection control is also a function of a feedback term, such feedback term being a function of a temperature of the particulate filter and the predetermined desired particulate filter temperature.
6. The method recited in claim 5 wherein the feedback term is the limited.
7. A method for controlling regeneration in a particulate filter coupled to an internal combustion engine, comprising:
  - controlling hydrocarbon injection into engine exhaust upstream of an oxidation catalyst disposed upstream of the particulate filter in accordance an algebraic sum of a feedforward term and a feedback term, such feedforward term being a function of a difference between with the engine exhaust temperature upstream of the catalyst and a

predetermined desired particulate filter temperature and such feedback term being a function of a temperature of the particulate filter and the predetermined desired particulate filter temperature.

8. The method recited in claim 7 wherein the predetermined desired particulate filter temperature is a temperature for regeneration within the filter.

9. A method for controlling regeneration in a particulate filter coupled to an internal combustion engine, comprising:

controlling hydrocarbon injection into engine exhaust upstream of an oxidation catalyst disposed upstream of the particulate filter in accordance an algebraic sum of a feedforward term and a feedback term, the feedforward term being is a function of a difference between with the engine exhaust temperature upstream of the catalyst and a predetermined desired particulate filter temperature, the feedback term being a function of a temperature of the particulate filter and the predetermined desired particulate filter temperature.

10. A engine control system comprising:

an internal combustion engine;  
a particulate filter coupled to an internal combustion engine;  
an oxidation catalyst disposed upstream of the particulate filter; and  
a controller for controlling hydrocarbon injection into engine exhaust upstream of the oxidation catalyst in accordance with a difference between the engine exhaust temperature upstream of the catalyst and a desired particulate filter regeneration temperature.

11. The system recited in claim 10 wherein the predetermined desired particulate filter temperature is a temperature for regeneration within the filter.

13. The system recited in claim 10 wherein the hydrocarbon injection control is a function of at least an engine operating condition and ambient conditions.

14. The system recited in claim 10 wherein the hydrocarbon injection control is a function of a difference between a temperature of the engine exhaust in a region between the catalyst and an entrance to the filter and a temperature of the engine exhaust downstream of the filter.
15. The system recited in claim 10 wherein the hydrocarbon injection control is also a function of a feedback term, such feedback term being a function of a temperature of the particulate filter and the predetermined desired particulate filter temperature.
16. The system recited in claim 15 wherein the feedback term is the limited.
17. A system, comprising:  
an internal combustion engine;  
in a particulate filter coupled to an internal combustion engine;  
an oxidation catalyst disposed upstream of the particulate filter; and  
a controller for controlling hydrocarbon injection into engine exhaust upstream of the oxidation catalyst in accordance an algebraic sum of a feedforward term and a feedback term, such feedforward term being a function of a difference between with the engine exhaust temperature upstream of the catalyst and a predetermined desired particulate filter temperature and such feedback term being a function of a temperature of the particulate filter and the predetermined desired particulate filter temperature.
18. The system recited in claim 17 wherein the predetermined desired particulate filter temperature is a temperature for regeneration within the filter.
19. An article of manufacture comprising:  
a computer storage medium having a program encoded for controlling regeneration in a particulate filter coupled to an internal combustion engine, such computer storage medium comprising:  
code for controlling hydrocarbon injection into engine exhaust upstream of an oxidation catalyst disposed upstream of the particulate filter in accordance with a difference

between the engine exhaust temperature upstream of the catalyst and a desired particulate filter regeneration.

20. The article of manufacture recited in claim 19 wherein the computer storage medium is a semiconductor chip.